



## DEFENSE INFORMATION SYSTEMS AGENCY

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IN REPLY  
REFER TO:

Joint Interoperability Test Command (JITE)

### MEMORANDUM FOR DISTRIBUTION

**5 Jan 11**

**Subject:** Special Interoperability Test Certification of the Amcom Software Inc., Computer Telephony Integration (CTI) Basic Operator Services System (BOSS) Workstation, Release 4.0.6

**References:** (a) DoD Directive 4630.05, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004  
(b) CJCSI 6212.01E, "Interoperability and Supportability of Information Technology and National Security Systems," 15 December 2008  
(c) through (e), see Enclosure 1

1. References (a) and (b) establish the Defense Information Systems Agency (DISA), Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.

2. The Amcom Software Inc., CTI BOSS Workstation, Release 4.0.6 is hereinafter referred to as the System Under Test (SUT). The SUT emulates all the features and functions of the Avaya NT4X09 Meridian Services Attendant Console (MSAC) hard console. The SUT meets all of its critical interoperability requirements and is certified for joint use within the Defense Information System Network (DISN) as a Customer Premise Equipment console. The SUT is certified for joint use within the DISN with the following products on the Unified Capabilities (UC) Approved Products List (APL): Avaya (formerly Nortel) Communication Server (CS)2100 and Avaya Meridian Switching Load (MSL)-100 Digital Switching Systems. The SUT was tested with the Avaya CS2100 with Software Release Succession Enterprise (SE)08. The SUT has also been certified with the Avaya MSL-100 Digital Switching System, which has similar same interfaces as the Avaya CS2100. The JITC analysis determined there is no risk in certifying the SUT with other Avaya CS2100 and Avaya MSL-100 digital switching systems on the UC APL. The SUT met the critical interoperability requirements for attendant services set forth in Reference (c). Testing was conducted using test procedures derived from Reference (d). This certification expires upon changes that affect interoperability, but no later than three years from the date of Defense Information Assurance (IA)/Security Accreditation Working Group (DSAWG) accreditation.

3. This certification is based on interoperability testing conducted by JITC, review of the vendor's Letters of Compliance (LoC), and DSAWG accreditation. Interoperability testing was conducted by JITC at the Global Information Grid Network Test Facility, Fort Huachuca, Arizona, from 26 March through 22 April 2007. Review of vendor's LoC was completed on

8 May 2007. The SUT supports the same software, interfaces, and functionality as when it was previously tested. The only difference is that the SUT now supports either Microsoft XP or Microsoft Windows Vista operating system platform. A review of the SUT and comparison with the new requirements in Reference (c) was conducted on 19 March 2010 to determine the SUT was certified for interoperability within the DISN without additional interoperability testing. The DSAWG granted accreditation on 5 January 2011 based on the security testing completed by DISA-led IA test teams and published in a separate report, Reference (e). The Certification Testing Summary (Enclosure 2) documents the test results and describes the test configuration.

4. The Functional Requirements used to evaluate the interoperability of the SUT and the interoperability statuses are indicated in Table 1.

**Table 1. SUT Functional Requirements and Interoperability Status**

Interface	Critical	Certified	Functional Requirements	Met	UCR Paragraph
Avaya Analog Proprietary (See note 1.)	Yes	Yes	Precedence and Preemption (R)	Yes	5.2.1.2.1
			Call Display (R)	Yes	5.2.1.2.2
			Class of Service Override (R)	Yes	5.2.1.2.3
			Busy Override and Busy Verification (R)	Yes	5.2.1.2.4
			Night Service (R)	Yes	5.2.1.2.5
			Automatic Recall of Attendant (R)	Yes	5.2.1.2.6
			Calls in Queue to the Attendant (R)	Yes	5.2.1.2.7
	Yes	Yes	Security (R)	See note 2.	3.2.3, 3.2.5, and 5.4.6.1
<b>NOTES:</b> 1 This interface is certified with the SUT in either a single- or multiple-console configuration, with or in lieu of the MSAC console. The SUT certified for joint use within the DISN specifically with the Avaya CS2100 and MSL-100 Digital Switching Systems on the UC APL. The CS2100 and MSL-100 were formerly Nortel products and may be found on the UC APL under Avaya or Nortel. 2 Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (e).					
<b>LEGEND:</b> APL    Approved Products List CS     Communication Server DISN   Defense Information System Network MSAC   Meridian Services Attendant Console MSL    Meridian Switching Load R       Required SUT     System Under Test UC      Unified Capabilities UCR     Unified Capabilities Requirements					

5. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at <https://stp.fhu.disa.mil>. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at <http://jit.fhu.disa.mil> (NIPRNet), or <http://199.208.204.125> (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at <http://jtc.fhu.disa.mil/tssi>. Due to the sensitivity of the information, the Information Assurance Accreditation Package (IAAP) that contains the approved configuration and deployment guide must be requested directly through


JITC Memo, JTE, Special Interoperability Test Certification of the Amcom Software Inc.,  
Computer Telephony Integration (CTI) Basic Operator Services System (BOSS) Workstation,  
Release 4.0.6

government civilian or uniformed military personnel from the Unified Capabilities Certification  
Office (UCCO), e-mail: [ucco@disa.mil](mailto:ucco@disa.mil).

6. The JITC point of contact is Mr. Cary Hogan, DSN 879-2589, commercial (520) 538-2589,  
FAX DSN 879-4347, or e-mail to [cary.hogan@disa.mil](mailto:cary.hogan@disa.mil). The JITC's mailing address is P.O. Box  
12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 0934902.

FOR THE COMMANDER:

2 Enclosures a/s

  
for RICHARD A. MEADOR  
Chief  
Battlespace Communications Portfolio

Distribution (electronic mail):

Joint Staff J-6

Joint Interoperability Test Command, Liaison, TE3/JT1

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DOT&E, Net-Centric Systems and Naval Warfare

U.S. Coast Guard, CG-64

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National Security Agency, DT

Defense Information Systems Agency, TEMC

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U.S. Joint Forces Command, Net-Centric Integration, Communication, and Capabilities  
Division, J68

Defense Information Systems Agency, GS23

## **ADDITIONAL REFERENCES**

- (c) Office of the Assistant Secretary of Defense, "Department of Defense Unified Capabilities Requirements 2008," 22 January 2009
- (d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006
- (e) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Amcom Software Inc., Computer Telephony Integration (CTI) Basic Operator Services System (BOSS) Workstation, Release 4.0.6 (Tracking Number 0934902)," 5 January 2011

## CERTIFICATION TESTING SUMMARY

**1. SYSTEM TITLE.** Amcom Software Inc., Computer Telephony Integration (CTI) Basic Operator Services System (BOSS) Workstation, Release 4.0.6; hereinafter referred to as the System Under Test (SUT).

**2. PROPONENT.** Headquarters United States Army Information Systems Engineering Command (HQ USAISEC).

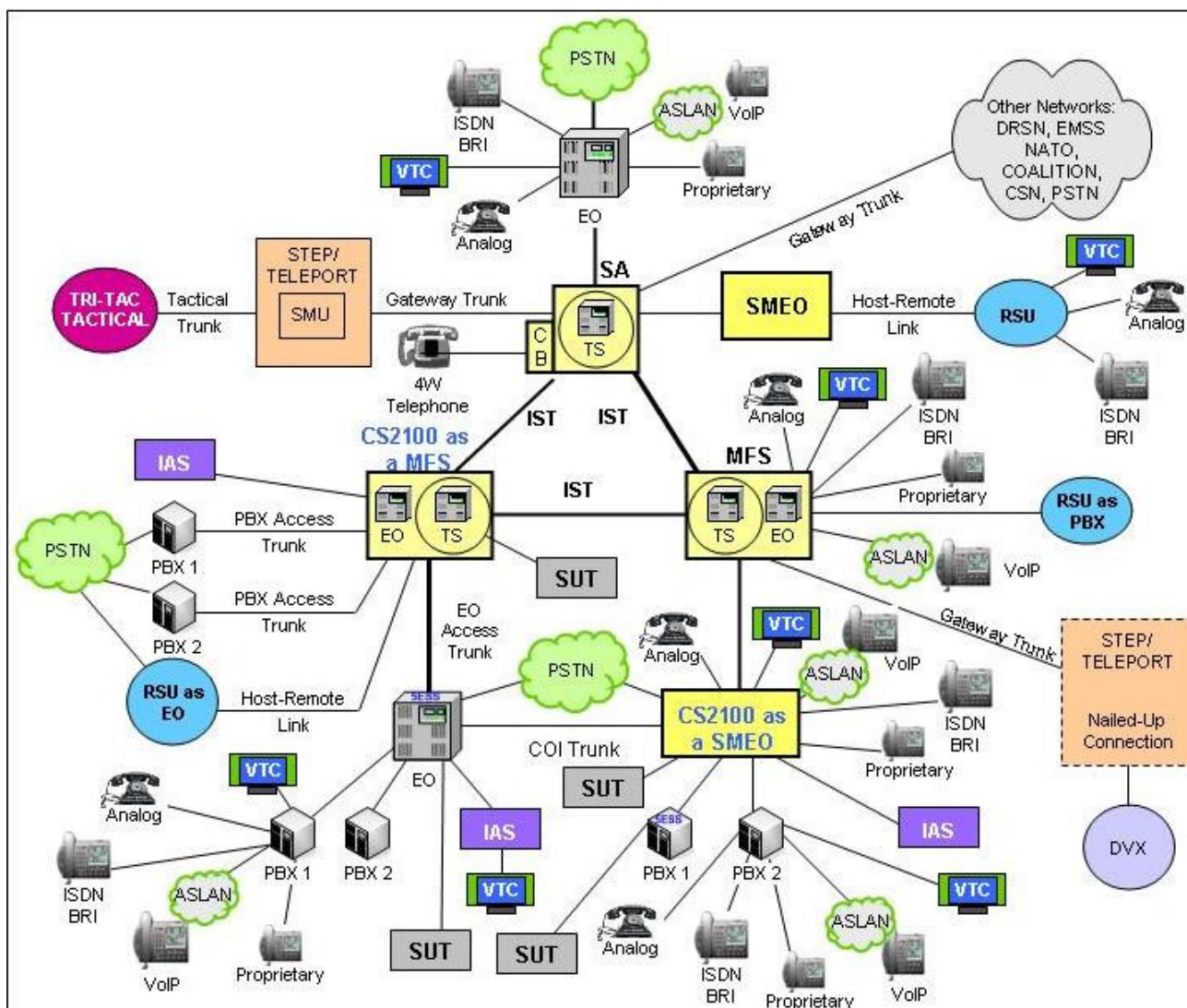
**3. PROGRAM MANAGER.** Mr. Steve Austin, AMSEL-IE-IS, Building 53301, Fort Huachuca, Arizona, 85613-5300, e-mail: steven.austin@us.army.mil.

**4. TESTER.** Joint Interoperability Test Command (JITC), Fort Huachuca, Arizona.

**5. SYSTEM UNDER TEST DESCRIPTION.** The SUT is a Personal Computer (PC)-based platform, which emulates the NT4X09 Meridian Services Attendant Console (MSAC) hard console for the Avaya Communication Server (CS)2100 and Meridian Switching Load (MSL)-100 digital switching systems. The SUT can be used in either a single- or multiple-console configuration, with or in lieu of the MSAC console. The SUT PC includes the BOSS software and phone server software running on the Windows XP Professional Operating System. The SUT also includes an adjunct component called the BOSS Console, which connects the switch, an operator headset, and the operator PC. The SUT features include:

- answering, parking, holding, and transferring calls.
- position busy, end-to-end signaling, busy verification, and display of queued calls.
- call forwarding, do not disturb, serial calls, trouble key, and trunk access control.
- call-handling, control, and security features.
- set of screen and web-based applications including directory services, paging, messaging, and on-call scheduling.

**6. OPERATIONAL ARCHITECTURE.** The Unified Capabilities Requirements (UCR) Defense Switched Network (DSN) architecture in Figure 2-1 depicts the relationship of the SUT to the DSN switches.



**NOTE:** The SUT is certified specifically with the Avaya Communication Server (CS)2100 and Meridian Switching Load (MSL)-100 Digital Switching Systems on the Unified Capabilities (UC) Approved Products List (APL).

#### LEGEND:

4W 4-Wire  
 ASLAN Assured Services Local Area Network  
 BRI Basic Rate Interface  
 CB Channel Bank  
 COI Community of Interest  
 CSN Canadian Switch Network  
 DRSN Defense Red Switch Network  
 DSN Defense Switched Network  
 DVX Deployable Voice Exchange  
 EMSS Enhanced Mobile Satellite System  
 EO End Office  
 IAS Integrated Access Switch  
 ISDN Integrated Services Digital Network  
 IST Interswitch Trunk  
 MFS Multifunction Switch

NATO North Atlantic Treaty Organization  
 PBX Private Branch Exchange  
 PBX 1 Private Branch Exchange 1  
 PBX 2 Private Branch Exchange 2  
 PSTN Public Switched Telephone Network  
 RSU Remote Switching Unit  
 SA Standalone  
 SMEO Small End Office  
 SMU Switched Multiplex Unit  
 STEP Standardized Tactical Entry Point  
 SUT System Under Test  
 Tri-Tac Tri-Service Tactical Communications Program  
 TS Tandem Switch  
 VoIP Voice over Internet Protocol  
 VTC Video Teleconferencing

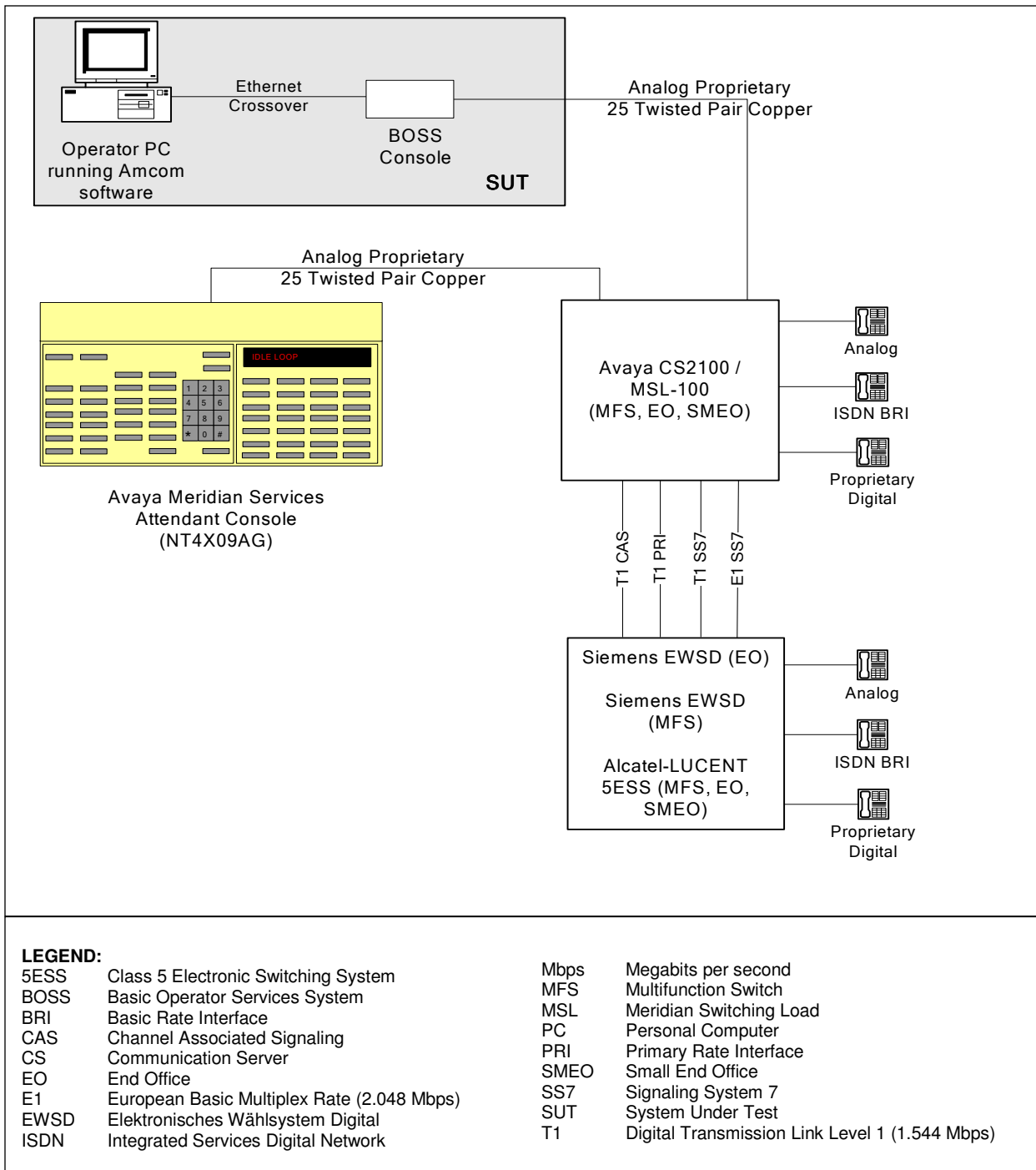
**Figure 2-1. DSN Architecture**

**7. REQUIRED SYSTEM INTERFACES.** Requirements specific to the SUT and interoperability results are listed in Table 2-1. These requirements are derived from the UCR Interface and Functional Requirements and were verified through JITC testing.

**Table 2-1. SUT Functional Requirements and Interoperability Status**

Interface	Critical	Certified	Functional Requirements	Met	UCR Paragraph																				
Avaya Analog Proprietary (See note 1.)	Yes	Yes	Precedence and Preemption (R)	Yes	5.2.1.2.1																				
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			Busy Override and Busy Verification (R)	Yes	5.2.1.2.4																				
			Night Service (R)	Yes	5.2.1.2.5																				
			Automatic Recall of Attendant (R)	Yes	5.2.1.2.6																				
			Calls in Queue to the Attendant (R)	Yes	5.2.1.2.7																				
	Yes	Yes	Security (R)	See note 2.	3.2.3, 3.2.5, and 5.4.6.1																				
<b>NOTES:</b> 1 This interface is certified with the SUT in either a single- or multiple-console configuration, with or in lieu of the MSAC console. The SUT certified for joint use within the DISN specifically with the Avaya CS2100 and MSL-100 Digital Switching Systems on the UC APL. 2 Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (e).																									
<b>LEGEND:</b> <table><tr><td>APL</td><td>Approved Products List</td><td>R</td><td>Required</td></tr><tr><td>CS</td><td>Communication Server</td><td>SUT</td><td>System Under Test</td></tr><tr><td>DISN</td><td>Defense Information System Network</td><td>UC</td><td>Unified Capabilities</td></tr><tr><td>MSAC</td><td>Meridian Services Attendant Console</td><td>UCR</td><td>Unified Capabilities Requirements</td></tr><tr><td>MSL</td><td>Meridian Switching Load</td><td></td><td></td></tr></table>						APL	Approved Products List	R	Required	CS	Communication Server	SUT	System Under Test	DISN	Defense Information System Network	UC	Unified Capabilities	MSAC	Meridian Services Attendant Console	UCR	Unified Capabilities Requirements	MSL	Meridian Switching Load		
APL	Approved Products List	R	Required																						
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MSL	Meridian Switching Load																								

**8. TEST NETWORK DESCRIPTION.** The SUT was tested at JITC's Global Information Grid Network Test Facility in a manner and configuration similar to that of the DSN operational environment. Testing the system's required functions and features was conducted using the test configuration depicted in Figure 2-2.



**Figure 2-2. Test Configuration**

**9. SYSTEM CONFIGURATIONS.** Table 2-2 provides the system configurations, hardware, and software components tested with the SUT. The SUT was tested in an operationally realistic environment to determine interoperability with a complement of DSN switches noted in Table 2-2. The DSN switches listed in Table 2-2 only depict the tested configuration. Table 2-2 is not intended to identify the only switch software releases that are certified with the SUT. The SUT is certified with all versions of Avaya Communication Server (CS) 2100 and Meridian Switching Load (MSL) switching systems listed on the Unified Capabilities (UC) Approved Products List (APL).

**Table 2-2. Tested System Configurations**

System Name	Hardware/Software Release		
Avaya CS2100	SE08		
Siemens EWSD	Version 19d with Patch Set 46		
Lucent 5ESS	5E16.2, Software Update 06-0002		
Avaya Meridian Services Attendant Console	NT4X09AG		
<b>SUT Release 4.0.6</b>	Component	Application/Software	
	Hewlett-Packard Compaq PC: Pentium 4 Processor 2.66 Gigahertz, 256 Megabytes RAM, Microsoft Windows XP- Professional with SP 2	Amcom Software Smart Console	Product Version 4.0.0.0, File Number 4.0.5.8
		Amcom Software Phone Server	Product Version 4.0.6.10, File Number 4.1.8.7
		TAPI Service Provider (TSP)	Product Version 4.0.0.0, File Number 4.0.1.8
	BOSS Console	Version 1.0, Revision B	
<b>LEGEND:</b>			
5ESS	Class 5 Electronic Switching System	RAM	Random Access Memory
BOSS	Basic Operator Services System	SE	Succession Enterprise
CS	Communication Server	SP	Service Pack
EWSD	Elektronisches Wählsystem Digital	SUT	System Under Test
PC	Personal Computer	TAPI	Telephony Application Programming Interface

**10. TEST LIMITATIONS.** None.

## 11. TEST RESULTS

(1) The UCR, paragraph 5.2.1.2.1, states the attendant console shall interoperate with Multi-Level Precedence and Preemption (MLPP) as described in UCR, section 5.2.2. The console shall be able to initiate all levels of precedence calls (i.e., ROUTINE through FLASH-OVERRIDE). The SUT successfully met the requirements for MLPP as described in section 5.2.2 of Reference (c).

(2) The UCR, paragraph 5.2.1.2.2, states the attendant console shall provide a visual display of the calling number, Class of Service (CoS), and precedence level for incoming direct dialed calls and diverted calls to the attendant. The SUT provided a visual display of the calling number, CoS, and precedence level for incoming direct-dialed calls and diverted calls to the attendant.

(3) The UCR, paragraph 5.2.1.2.3, states the attendant shall provide the capability to override any class of service (calling area or precedence) of the calling party on a call-by-call basis. The SUT provided the capability to override any CoS (calling area or precedence) of the calling party on a call-by-call basis.

(4) The UCR, paragraph 5.2.1.2.4, states the attendant shall have the capability to override a busy line condition. If the called line being verified is busy, off-hook supervision shall be given to the attendant performing the busy verification. When a verification code is used, all digits of the code must be dialed before cut-through to the line can be accomplished. Connections to commercial Central Office access lines shall be restricted from busy verification access. The attendant shall have the capability to enter an existing busy line to inform the user of an incoming call. An override tone shall be provided to the busy line prior to the attendant entering the conversation, and the tone shall be repeated periodically as long as the attendant is connected. Selected stations may be classmarked to deny attendant break-in. In particular, it shall be possible to classmark the lines of selected stations (e.g., all data and secure voice) to preclude the busy verification or busy override being applied to the selected station lines. The SUT meets the following Functional Requirements for busy override and busy verification:

(a) The SUT successfully demonstrated the capability to override a busy line condition. If the called line being verified was busy, off-hook supervision was given to the attendant performing the busy verification.

(b) The SUT successfully demonstrated the capability to enter an existing busy line to inform the user of an incoming call. An override tone was provided to the busy line prior to the attendant entering the conversation, and the tone was repeated periodically as long as the attendant was connected.

(5) The UCR, paragraph 5.2.1.2.5, states the attendant console shall have the ability to route all calls normally directed to the console to a night service deflection. The night service deflection shall be a fixed or manually selected directory number. The SUT successfully demonstrated the ability to route all calls normally directed to the console to a night service deflection. The night service deflection was a fixed or manually selected directory number.

(6) The UCR, paragraph 5.2.1.2.6, states when an attendant extends a call to a station that is busy or does not answer within a preset time, the extended party shall be recalled automatically to the console. Recalls shall be transferred to the console that originally processed the call. If that console is busy, the recall shall be placed into the console queue; but if the console is out of service, the recall shall be routed to another console. When an attendant extended a call to a station that was busy or did not answer within a preset time, the extended party was automatically recalled to the console. If that console was busy, the recall was placed into the console queue; if the console was out of service, the recall was routed to another console.

(7) The UCR, paragraph 5.2.1.2.7, states the attendant console shall have the capability to place calls in a waiting queue. Calls placed in queue to the attendant console shall be retrieved by the attendant in order of precedence level (FLASH-OVERRIDE first, ROUTINE last) and longest holding time. Calls in queue shall not be lost when a console is placed out of service or forwarded to night service deflection. When the console is placed out of service or forwarded to night service while calls are in queue the console shall be capable of one of the following solutions: The SUT successfully demonstrated the capability to place calls in a waiting queue. Calls placed in queue to the attendant console were retrieved by the attendant in order of precedence level (FLASH-OVERRIDE first, ROUTINE last) and longest holding time. Calls in queue were not lost when a console was placed out of service or forwarded to night service deflection. When the console was placed out of service or forwarded to night service while calls were in queue, the console was capable of both of the following solutions:

(a) All calls in queue were forwarded first to the centralized attendant, then to night service.

(b) All subsequent calls placed to the attendant console were forwarded first to the centralized attendant and then to night service. The attendant console was able to answer all remaining calls in queue, preventing any calls from being lost.

(8) Security is tested and met by DISA-led Information Assurance test teams and is published in a separate report, Reference (e).

**b. Test Summary.** The SUT emulates all the features and functions of the Avaya NT4X09 hard console. The SUT met the critical interoperability requirements for an attendant console set forth in Reference (c) and is certified for joint use within the Defense Information System Network (DISN) specifically with the Avaya CS2100 and MSL-100 digital switching systems listed on the UC APL.

**12. TEST AND ANALYSIS REPORT.** No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at <https://stp.fhu.disa.mil>. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at <http://jit.fhu.disa.mil> (NIPRNet), or <http://199.208.204.125> (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at <http://jitc.fhu.disa.mil/tssi>. Due to the sensitivity of the information, the Information Assurance Accreditation Package (IAAP) that contains the approved configuration and deployment guide must be requested directly through government civilian or uniformed military personnel from the Unified Capabilities Certification Office (UCCO), e-mail: [ucco@disa.mil](mailto:ucco@disa.mil).